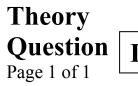


Summary Answer Sheet

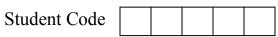




Question	Answer	Maximum Marks
I.1	$v_T = \frac{mg}{k}$	0.5
1.2	$z(t) = \frac{mg}{k} \left[t + \frac{m}{k} \left(e^{-kt/m} - 1 \right) \right]$	1.0
1.3	$e_i = vB_a 2\pi a$ where $B_a = \frac{\mu_0}{4\pi} \frac{3pa(z_0 - z)}{[a^2 + (z_0 - z)^2]^{5/2}}$	1.5
I.4	$f_{em} = i2\pi a B_a$ where $B_a = \frac{\mu_0}{4\pi} \frac{3pa(z_0 - z)}{[a^2 + (z_0 - z)^2]^{5/2}}$	1.0
1.5	Magnitude of the force = f_{em}	0.5
I.6	$e_i = L\frac{di}{dt} + iR$	0.5



Summary Answer Sheet



Theory
Question
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1.7	The potential energy is converted into 1. $mv^2/2$ (kinetic energy) 2. $Li^2/2$ (magnetic energy) 3. $i^2R\Delta t$ (Joule loss due to the current in time Δt)	1.0
1.8	Tick in appropriate box. Yes No	0.5
1.9	Resistance = $\frac{2\pi a}{\sigma w \Delta z'}$	0.5
1.10	$k = \left(\frac{\mu_0}{4\pi}\right)^2 \frac{18p^2 \pi \sigma w}{a^4} \int_{-\infty}^{\infty} \frac{u^2}{(1+u^2)^5} du$	2.0
I.11	$k = \frac{{\mu_0}^2 p^2}{a^4 R_0}$	1.0